# Development of antibacterial & antiviral finish for fabrics that can be used for manufacturing PPE suits with enhanced comfort

**Deshpande R. H.**
Patil U.J., Indi Y.M.
*Textile & Engineering Institute, Ichalkaranji, Dist. Kolhapur, Maharashtra, India.*
rhdeshpande@dkte.ac.in

Abstract
The COVID-19 pandemic has accelerated the demand for durable, cost-effective, and comfortable antimicrobial and antiviral textiles. Conventional textile materials, especially hydrophilic natural and regenerated fibers, provide favorable conditions for microbial growth, while existing nano-silver-based finishes suffer from limited durability and high cost. Moreover, commonly used nonwoven materials in masks and PPE kits exhibit poor breathability, limited reusability, and environmental concerns. This study investigates the development of a graphene–inorganic nanomaterial based finishing system to impart durable antibacterial and antiviral properties to cotton and blended textiles. The research focuses on optimizing nanomaterial combinations, morphology, and application techniques to enhance functional durability while reducing treatment cost. Additional emphasis is placed on improving comfort and moisture management properties of treated fabrics.

References

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Figures


**Figure 1:** Personal Protective Equipment kit